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Human papillomavirus DNA is present in a subset of unselected breast cancers.

Liu Y, Klimberg VS, Andrews NR, Hicks CR, Peng H, Chiriva-Internati M, Henry-Tillman R, Hermonat PL.

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OBJECTIVE: The major molecular events in the genesis of most breast cancers are unknown. However, human papillomaviruses (HPV) have been reported to be found in a significant portion of breast cancers of women with concomitant cervical intraepithelial neoplasia III. To investigate a potential HPV-breast cancer link, we carried out a small survey to identify HPV in unselected, general breast cancer tissues. STUDY DESIGN/METHODS: Deoxyribonucleic acid (DNA) was isolated from 17 breast cancer tissues (and one cervical swab) taken from our local, randomly selected patient population. Two different previously characterized broad-spectrum primer sets (targeting the E6/E7 or L1 regions) were used to amplify HPV DNA, and another primer set was used to amplify the ColE1/pBR322 origin of replication by polymerase chain reaction amplification. The polymerase chain reaction product DNA was analyzed by dot blot hybridization with HPV-16, -18, -31, or pRB322 DNA probes. Total cellular DNA was also analyzed by one- and two-dimensional Southern blot analysis. Finally, the E6/E7 polymerase chain reaction products were cloned, sequenced, and compared to previously cloned HPV types. RESULTS: Polymerase chain reaction/dot blot analysis by both the HPV E6-E7 and L1 primer sets identified the same 6 out of 17 (35%) breast cancers as being HPV positive. ColE1/pBR322 origin targeted polymerase chain reaction/dot blot analysis failed to identify plasmid contamination. One- and two-dimensional Southern blot analysis showed that the breast cancers specimens contained significant levels of HPV DNA and that the viral DNA was largely episomal. The sequences of the HPV clones demonstrated that HPV-16, -18, and possibly type 11 were present within the breast cancer specimens. Furthermore, the HPV sequences cloned from the cervical swab and breast cancer of the same patient were

found to be identical. CONCLUSIONS: These data suggest that HPV may be associated with a significant subset of breast cancers, and further suggest that additional studies are warranted.

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Breast Cancer Res Treat. 1996;39(2):197-202.
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3: Thompson CH, Rose BR, Cossart YE. Related Articles, Links

Detection of HPV DNA in archival specimens of cervical cancer using in situ hybridisation and the polymerase chain reaction.
J Med Virol. 1992 Jan;36(1):54-9.
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Quantitation of human papillomavirus 16 E6 and E7 DNA and RNA in residual material from ThinPrep Papanicolaou tests using real-time polymerase chain reaction analysis.
Cancer. 2002 Apr 15;94(8):2199-210.
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5: Ip SM, Wong LC, Xu CM, Cheung AN, Tsang PC, Ngan HY. Related Articles, Links

Detection of human papillomavirus DNA in malignant lesions from Chinese women with carcinomas of the upper genital tract.
Gynecol Oncol. 2002 Oct;87(1):104-11.
PMID: 12468350 [PubMed - indexed for MEDLINE]

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A comparison of early (E7) and late (L1) primer-mediated amplification of papillomaviral DNA in cervical neoplasia.
Mol Cell Probes. 1996 Oct;10(5):347-51.
PMID: 8910889 [PubMed - indexed for MEDLINE]

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Ubiquitous presence of E6 and E7 transcripts in human papillomavirus-positive cervical carcinomas regardless of its type.
J Med Virol. 2000 Oct;62(2):251-8.
PMID: 11002256 [PubMed - indexed for MEDLINE]

☐ **8:** Rosales R, Lopez-Contreras M, Cortes RR. Related Articles, Links

Antibodies against human papillomavirus (HPV) type 16 and 18 E2, E6 and E7 proteins in sera: correlation with presence of papillomavirus DNA.
J Med Virol. 2001 Dec;65(4):736-44.
PMID: 11745939 [PubMed - indexed for MEDLINE]

☐ **9:** Yoshinouchi M, Hongo A, Nakamura K, Kodama J, Itoh S, Sakai H, Kudo T. Related Articles, Links

Analysis by multiplex PCR of the physical status of human papillomavirus type 16 DNA in cervical cancers.
J Clin Microbiol. 1999 Nov;37(11):3514-7.
PMID: 10523544 [PubMed - indexed for MEDLINE]

☐ **10:** Fujii T, Matsushima Y, Yajima M, Sugimura T, Terada M. Related Articles, Links

Serum antibody against unfused recombinant E7 protein of human papillomavirus type 16 in cervical cancer patients.
Jpn J Cancer Res. 1995 Jan;86(1):28-34.
PMID: 7737906 [PubMed - indexed for MEDLINE]

☐ **11:** Monk BJ, Cook N, Ahn C, Vasilev SA, Berman ML, Wilczynski SP. Related Articles, Links

Comparison of the polymerase chain reaction and Southern blot analysis in detecting and typing human papilloma virus deoxyribonucleic acid in tumors of the lower female genital tract.
Diagn Mol Pathol. 1994 Dec;3(4):283-91.
PMID: 7866640 [PubMed - indexed for MEDLINE]

☐ **12:** Yu Y, Morimoto T, Sasa M, Okazaki K, Harada Y, Fujiwara T, Irie Y, Takahashi E, Tanigami A, Izumi K. Related Articles, Links

Human papillomavirus type 33 DNA in breast cancer in Chinese.
Breast Cancer. 2000 Jan;7(1):33-6.
PMID: 11029768 [PubMed - indexed for MEDLINE]

☐ **13:** Sano T, Sakurai S, Fukuda T, Nakajima T. Related Articles, Links

Unsuccessful effort to detect human papillomavirus DNA in urinary bladder cancers by the polymerase chain reaction and in situ hybridization.
Pathol Int. 1995 Jul;45(7):506-12. Review.
PMID: 7551011 [PubMed - indexed for MEDLINE]

☐ **14:** Hennig EM, Suo Z, Thoresen S, Holm R, Kvinnsland S, Nesland JM. Related Articles, Links

Human papillomavirus 16 in breast cancer of women treated for high grade cervical intraepithelial neoplasia (CIN III).
Breast Cancer Res Treat. 1999 Jan;53(2):121-35.

PMID: 10326789 [PubMed - indexed for MEDLINE]

☐ **15:** Rose BR, Thompson CH, Tattersall MH, Elliott PM, Dalrymple C, Cossart YE. Related Articles, Links

Identification of E6/E7 transcription patterns in HPV 16-positive cervical cancers using the reverse transcription/polymerase chain reaction.
Gynecol Oncol. 1995 Feb;56(2):239-44.
PMID: 7896192 [PubMed - indexed for MEDLINE]

☐ **16:** Venturoli S, Bonvicini F, Cricca M, Gallinella G, Giosa F, Farinazzo F, Stefanuto G, Musiani M, Zerbini M. Related Articles, Links

Evaluation of commercial kits for the detection and typing of human papillomavirus in cervical swabs.
J Virol Methods. 2002 Aug;105(1):49-56.
PMID: 12176141 [PubMed - indexed for MEDLINE]

☐ **17:** Bohlmeyer T, Le TN, Shroyer AL, Markham N, Shroyer KR. Related Articles, Links

Detection of human papillomavirus in squamous cell carcinomas of the lung by polymerase chain reaction.
Am J Respir Cell Mol Biol. 1998 Feb;18(2):265-9.
PMID: 9476914 [PubMed - indexed for MEDLINE]

☐ **18:** Ikenberg H, Spitz C, Schmitt B, Pfisterer J, Aisslinger U, Pfleiderer A. Related Articles, Links

Human papillomavirus DNA in locally recurrent cervical cancer.
Gynecol Oncol. 1994 Mar;52(3):332-6.
PMID: 8157191 [PubMed - indexed for MEDLINE]

☐ **19:** Hermonat PL, Kechelava S, Lowery CL, Korourian S. Related Articles, Links

Trophoblasts are the preferential target for human papilloma virus infection in spontaneously aborted products of conception.
Hum Pathol. 1998 Feb;29(2):170-4.
PMID: 9490277 [PubMed - indexed for MEDLINE]

☐ **20:** Hermonat PL, Han L, Wendel PJ, Quirk JG, Stern S, Lowery CL, Rechtin TM. Related Articles, Links

Human papillomavirus is more prevalent in first trimester spontaneously aborted products of conception compared to elective specimens.
Virus Genes. 1997;14(1):13-7.
PMID: 9208451 [PubMed - indexed for MEDLINE]

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